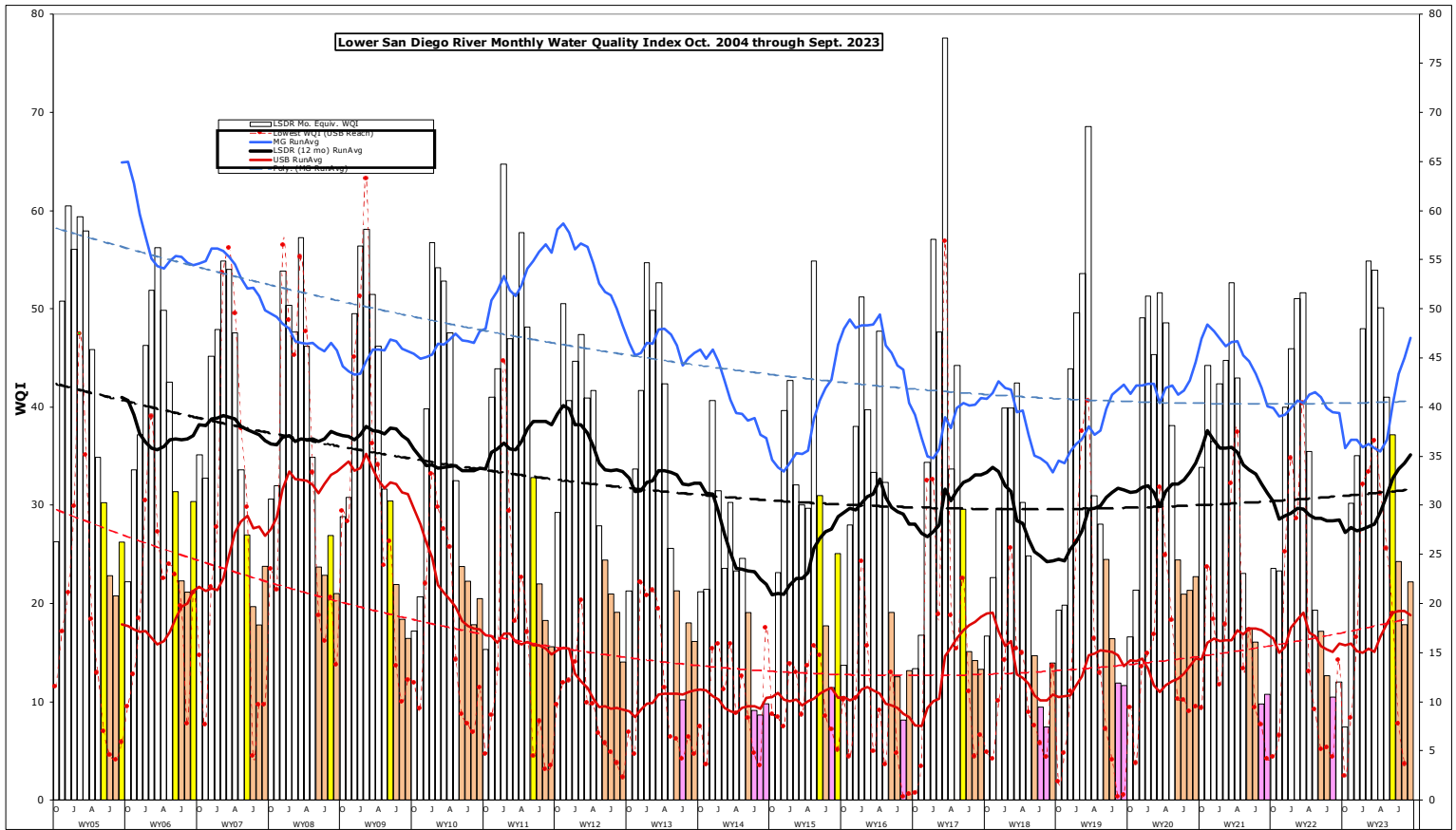


Monthly WQM Report

Lower San Diego River - September 2023



Lower SDR Water Quality Monitoring Data Summary

Table 1 presents a summary of water quality data monitored by the SDRPF RiverWatch Team within the Lower San Diego River (LSDR) watershed over the past two months (Sept/Aug) of 2023. This month's overall index is four points (24%) greater than last month. Although improved from August, overall water quality in the LSDR hydrologic unit (HSU 907.1) remained Poor (E).

Table 1 - Sept/Aug 2023 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Sept/Aug	[8-10] Sept/Aug	[11-15] Sept/Aug	[1-15] Sept/Aug	Last Mo. (8/'23)	Last Yr. (9/'22)	19-yr Avg. (Sept)
Temperature, oC	22.4/24.0	21.1/22.4	21.5/23.0	21.8/23.2	-6%	-8%	1%
Sp.Cond., mS/cm	2.40/3.19	0.96/1.87	1.30/1.85	1.86/2.48	-25%	-36%	-35%
DO, mg/L	2.23/2.75	5.85/3.98	3.46/2.56	3.44/2.87	18%	32%	2%
DO, % of Sat.	26/33	66/46	40/30	40/34			
pH	7.47/7.54	8.05/7.81	8.01/7.70	7.79/7.63	3.8%	3.5%	0.8%
3-day ADF, cfs	7.2/4.7	3.1/2.7	2.4/2.3	4.4/3.3	33%	352%	164%
WQ Index	17/20	35/22	22/15	22/18	24%	85%	25%
Sept/Aug	E/E	D/E	E/E	E/E			
Sept/Aug	Poor/Poor	Marginal/ Poor	Poor/Poor	Poor/Poor	Index up 4 points from last month		

Negative variance (declines from norms) and DO depletion (DO < 5.0 mg/L or 50% of Sat) expressed in red.

LSDR **water temperatures** declined 1.4oC (6%) from last month to nearly reach the 19-yr norm of 21.5oC. The overall **specific conductance** of 1.68 mS/cm constitutes a 25% decrease from last month to 35% below from the 19-yr norm of 2.87 mS/cm. The overall **dissolved oxygen** level of 3.44 mg/L (40%Sat.) is 16% above last month, and 32% above last Sept. to within 2% of the 19-yr norm of 3.45 mg/L (39%Sat). **Streamflow** over the antecedent 3-day period of 4.4 cfs is 33% more than last month, over three times a year ago and over twice the September norm of 1.7 cfs. This month's overall LSDR **water quality index** (WQI) of 22 (E) is 24% above last month, 85% greater than a year ago and 25% more than the 19-yr norm of 18 (E).

Monthly WQI values occurring over the past two years of record for the three main sections of the lower river system, the overall LSDR average, plus 30-day antecedent average daily streamflow (ADF) and total monthly rainfall (MRF) values, are expressed in **Table 2** on the next page.

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over nearly 19 years of monitoring. June values for each year are expressed as color-shaded bars; **blue** (50 or >) B-Good, **green** (38-49) C-Fair, yellow (25-37) D-Marginal, **brown** (13-24) E-Poor, and **pink** (12 or <) F-Very Poor. Running average index values for the LSDR (reach-weighted averages of all sites) are shown as a heavy black line. Running averages for the consistently highest (best) quality section of the river (Mission Gorge) are shown as a **blue** line while the consistently lowest (poorest) reach (Upper Santee Basin) is shown in **red**. The generally downward slope in index values, represented by dashed trendlines, are attributable to depleted DO levels extending throughout protracted low-flow periods of the year. The dashed lines present a negative slope (decline) of 0.8 points per annum in index value over the entire monitoring period. The irregular solid black line (12-month running average index), generally increasing since a low of 22 in late 2014, is currently at 35; 7.6% above the running average norm of 32.7. This month's index value of is the 12th time the index has been at a grade level of E for the month of September.

WQI values extending from Oct.'04 thru Sept.'23 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches of the lower watershed and overall (i.e., LSDR). The current 12-mo. running average WQI of 35 for September is 7.2% above the 19-yr annual norm. The running average low for Sept. of 22 (33% below norm) occurred in 2014. The highest running average WQI for this month of 38 (16% above norm) occurred in 2011. The greatest improvement in water quality this month occurred within the Mission Gorge section.

Monthly and 12-mo. running average WQI values for the "poorest" (Upper Santee Basin) and "best" (Mission Gorge) reaches of the lower watershed are presented in **Chart 2**. Although water quality has improved to an extent within the upper-most reach in recent years, resurgent growth of invasive aquatics and subsequent decomposition with below average streamflow and accrual of organics, especially in the deeper ponded portions of the river, are considered principal causes of poor water quality. The greatest downward trend (**red-dashed line**) over time is associated with the poorest quality reach (Upper Santee Basin) encompassing Mast Park(#13E) and Magnolia Ave. (#14) monitoring sites. The Mission Gorge (**blue line**) section from Old Mission Dam through Mission Trails continues to demonstrate the least decline in index values over the entire monitoring period. The poorest quality Mission Valley site is at the outlet from Kaiser Ponds (Site 6) below San Diego Mission Rd. bridge. The poorest Santee Basin site (13E) is Mast Park East, also referred to as Walmart Pond. The rainfall (Tropical Storm Hillary) listed in Table 2 (1.98") occurred in the later portion of August following last month's monitoring effort.

Spatial WQI values determined over the last three months, shown in **Charts 3, 4 and 5** on page 6, are expressed in order of their position upstream. This month's results (color bars w/values in black shown on Chart 5) are above those from the last two months (Charts 3 & 4). Two out of 16 sites (13%) are graded F (Very Poor) while nine (56%) are Poor, three (19%) Marginal (D) and the remaining two (13%) Fair (C). The current index values for most of the sites are at or above 19-yr norms; only 13E remains below. The October index is expected to continue improving due to greater streamflow, lower water temperatures and elevated dissolved oxygen levels.

{9/19/23 jck}

